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AND

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PETROLEUM.

New Source of Burning Oil.

ALBERTITE AND CANNELITE.

[From the London Mining Journal.]

Since the accidental discovery of "spouting" petroleum wells, much attention has been given by scientific men to the various forms which petroleum assumes in rocks of different, or even the same, geological age. It appears to be satisfactorily established that liquid petroleum may be, and indeed is, found in rocks of all ages, from the lower Silurian to the Tertiary. But it is in Devonian strata that the accumulations are the most abundant on the American continent. In many parts of the United States, in Western Canada, in the Great Gaspe peninsula on the lower St. Lawrence, in the region about the eastern headwaters of the Mackenzie River, in Rupert's Land, and in New Brunswick, fluid petroleum has originated for the most part in rocks of the Devonian age. Solidified or inspissated petroleum has also been found in rocks of all ages, and under conditions precisely similar to those which govern the distribution of liquid petroleum.

The recent discovery of important veins of solid petroleum in the form of Albertite and its modifications, both in America and Europe, confers on this substance a commercial significance which is daily growing more extended and valuable. Albertite is still a novelty to the mining world on this side of the Atlantic, but the Hanover vein, now being actively worked, will rapidly make us conversant with this beautiful mineral.

Few are conversant with some of the applications of Albertite in America. To say that chewing gum is one of the products of Albertite would provoke a smile of incredulity, or an expression of distrust, yet such is the fact. Many tons of chewing gum are manufactured at Portland, in the State of Maine, from the paraffin, which is one of the bi-products of the distillation of kerosene oil from the Albertite of New Brunswick.—Careful distillation secures from 96 to 104 gallons of crude oil from a ton of Albertite. The paraffin which is extracted during the process of refining, is purified until it resembles the finest wax, but with a greater degree of transparency. This tasteless, inodorous, and harmless compound is variously colored and flavored, and presented to the American public as "chewing gum," finding a ready sale under that attractive disguise.

The richness and brilliancy of the gas in the city of New York, in Boston, and in Portland, have long been admired, and stand in striking contrast with the weak and feeble light of our London street lamps. Manhattan gas varies from 14 to 16-candle power, more frequently approaching the higher standard. This degree of illumination is obtained by mixing a certain proportion of New Brunswick Albertite with comparatively poor coal; hence the reason why Albertite commands 60s. per ton. A material which produces the richest known illuminating gas, an average of 100 gallons of crude oil to the ton, which supplies New England with "chewing gum," deserves to be better known than it is on this side of the water. We shall, therefore venture to describe briefly some interesting points in its "natural history." Petroleum "wells," or springs are invariably found on the crown of anticlinal folds in the strata; and it is in the fissures which frequently exist along the axes of such folds or elevations that inspissated petroleum, whether in the form of the brilliant Albertite of New Brunswick and Ross-shire, "Cuba Asphalte," "Ritchie Coal" of Virginia, the Tertiary Albertite of Nevada or of Germany, is most commonly contained. Albertite, and all the hardened petroleums, with the exception of "gum beds" and allied forms, may be regarded as mineral veins, produced by injection instead of segregation. Hence, in endeavoring to determine the extent to which Albertite may exist in a given area, where indications of its presence are observed, the proper course is to seek at once for anticlinal folds in the strata, dislocations, uplifts, or downfalls—in a word, for disturbances which may have produced fissures, for it is in the fissures that Albertite will be found in place. Another valuable guide is to study the relations of Albertite conglomerate, or Albertite in drift. It seems remarkable that so brittle and comparatively fragile a substance as Albertite should occur in a coarse lower carboniferous conglomerate, yet such is the case on the flanks of the Caledonian mountain range of New Brunswick, an elevated plateau, rising abruptly above 500 ft. above a gently undulating plane—forming, in fact, a well defined and wonderfully regular ancient coast line of the lower carboniferous ocean. In patches and narrow belts, for 30 miles, on a course nearly due east and west, Albertite occurs in conglomerate formed of worn and angular fragments of magnesian slate, trap, syenite, &c., as subangular pebbles, or sharply angular fragments, and grains. It appears in these forms, not only in conglomerate, resting immediately but uncomformably on Devonian rocks, but in super-imposed drift, from which it is not unfrequently turned up by the plow. Elsewhere, but always in narrow belts, on an east and west course, the pebbles of the lower carboniferous conglomerate are connected together by Albertite, as are the coarse grains of an overlying grit, resembling our millstone grit; and, to complete the proof of the origin and local distribution of Albertite, shafts sunk on small veins in this conglomerate have passed through this rock, and penetrated Devonian slates, where the Albertite has been found to occupy fissures produced by dislocations exactly similar to mineral veins. A close examination of some veins of Albertite reveals the fact that the fissures in which this brilliant mineral is found have been widened by a second and even a third disruption, each enlargement being accompanied by a crushing of the existing vein of Albertine, the subsequent cementing of its fragmentary portions together by fresh injections of petroleum, and the filling up of the enlarged crack with a homogeneous mass of Albertite. It is proper to observe that within a mile or so of the belts of Albertite and Cannelite ground feeble petroleum springs are visible, and numerous efforts are now being made by enterprising Americans in New Brunswick to reach the source of supply by deep borings.

It is supposed by geologists who have examined the area where veins of the Albertite occur, that a rival or rivals to the Albert Mine will be discovered as soon as the forests of the country become cleared by the pioneers of civilization—indeed, so late as last December a fine vein of Albertite was struck in a crack produced by a dislocation on the banks of the Petitcodiac river, some four miles from the Albert Mine, on the property of the East Albert Mining Company. The vein has reached a thickness of 21 in. at a depth of 10 fathoms, and is considered very promising. The ground is owned by Americans, as is, indeed, most of the area near tidal rivers where indications of Albertite or Cannelite have been met with.

A very considerable portion of that portion of the province where small veins of Albertite have been found is still in a state of nature, and remote from navigable rivers or railroads, hence it will be some years before the beds of Cannelite which we may suppose to be associated with them will come into the market. It has already been stated, in last week's Journal, that Cannelite is for the most part made up of comminuted Albertite, the particles being cemented together by a calcerous paste; whenever, therefore, Albertite is found in the Albert shales, there also may we look for Cannelite. The commercial importance of these discoveries needs no comment, but we may learn a practical lesson from them which those who are disposed to moan over the anticipated exhaustion of our coal fields will do well to weigh. We have been startled of late by the grave computations of eminent statesmen as to the duration of our coal fields. We consumed nigh on 100,000,000 tons last year, and our annual increase of consumption is at the rate of 3 per cent.; and we are gravely told that in three generations our home supplies of coal will be exhausted. Now, there are two or three facts which very materially modify these gloomy conclusions. The decline of our commercial superiority is predicated upon the assumption that we are to make no further progress in the discovery and application of heating and illuminating materials. We are to confine ourselves exclusively to coal; and further than this, we are not to indulge the hope that, even if coal should be absolutely necessary in three generations, we can import it from our American colonies, where it is now a drug. See what the last six years have done with regard to petroleum, and what the last six months have done in the way of bringing artificial petroleum from shales, heretofore considered worthless, into the markets of Europe. We are in the infancy of our knowledge respecting the distribution of oil-producing rocks. How few are aware of the fact that many of the light brown or buff colored shales contain the largest amounts of volatile products. That thousands of tons of "chewing gum" exist in strata which have never been suspected by practical men of containing a particle of that delightful compound. In metallurgical arts, the progress that has taken place in Russia, Prussia, and some of our own manufacturing centers, certainly tends to show that we shall relinquish the direct use of coal before coal relinquishes us. Gas fuel will make its way because it is the most economical, the most speedy, and the most effective; and in order to make carbonic acid gas with economy we are not tied to coal, but may make use of the poorer class of shales.

Then there is Nova Scotia and Cape Breton Island, with their magnificent coal seams, from 10 to 20 feet in thickness; there is New Brunswick, with its Albertite and Cannelite, and its vast deposits of bituminous shales, which will be worth as much as many of our coal mines, as soon as means of communication with the seabord are opened up. We do not despair of the

maintainance of our commercial superiority—we do not see any reason to fear for our manufactures, our railways, or our steam mercantile marine, or our navy, as long as the evidence of progress in the application of new sources of heat for metallurgical and manufacturing purposes is steadily accumulating; but we are disposed to grumble at the apathy which our mining capitalists show in allowing the Americans to possess themselves of the inexhaustable coal fields of Nova Scotia and Cape Breton, or the equally valuable Cannelite and shale deposits of New Brunswick.

Petroleum Improving.—The price of crude Petroleum at the wells is steadily advancing and from $3 per barrel, the lowest point reached, now commands $4 50 per barrel. It is also stated that the removal of the income tax, on crude oil, has greatly stimulated its production; many of the smaller wells that did not pay to work at $3 per barrel, are being worked at the present prices with energy and profit. Under an active demand, shipments from the oil region to export points are considerably in excess of the production. The oil that was held back for better prices is now coming forward. The receipts of oil at Pittsburgh, for the year ending the 12th ult., were 537,431 barrels, against 159,525 barrels to same date last year, showing an increase of 380,896 barrels. The daily production of oil at and within six miles of Titusville, is set down by the *Herald*, of that place at 8,448 barrels. The amount of refined oil on hand is large, and may prevent as rapid an advance in crude as might otherwise be calculated

Oil Excitement in Ohio.—A gentleman who lately returned from a visit to Muskingum Co., Ohio, represents the oil excitement as being intense, and not without cause. He thinks it is likely to become one of the most productive petroleum regions in the State. At the village of Rural Dale, about fourteen miles south of Zanesville, nine wells have recently been bored, and only one proved a failure,. Other wells are on the point of construction. The pumping thus far has been by means of the spring-pole and treadle, but the yield is comparatively large. Steam engines will be substituted as soon as the roads are in better condition. The oil is of a very heavy gravity and sells at $30 per barrel.—*Oil News.*

Struck Oil.—The Charleston Petroleum and Mining Co., who are now boring, a short distance north of town, struck oil in small quantities, the latter part of last week, at a depth of 140 feet. They first came to a strata of slate, then a thin vein of stone coal, and at last accounts were boring in limestone. When they get through the latter oil is expected to flow in abundance. We understand that the company have been offered a liberal percentage on their investment by some eastern capitalists, and that some of them are disposed to sell out. We trust they will do no such thing. If there is money in the enterprise, as we doubt not there is, our own citizens should share the profits and not people from other sections.—*Charleston (Ills.) Courier.*

The Sullivan County Oil and Mining Company have secured a lease of the well bored by the Railroad company for water near the depot. It was "sunk" some six or eight years ago to the depth of over six hundred feet, when the effort was abandoned. The Oil Company have erected a derrick, have an engine on the ground, and will be soon at work cleaning out the hole, and boring still deeper in search of oil. When the well was first sunk, a peculiar and heretofore unknown substance was pumped up, which is now supposed to have been petroleum. It was found about six hundred feet below the surface.

Gold of New Hampshire.—According to a late report of Dr. Hayes, Assayes of Massachusetts, the gold mines of New Hampshire are found to yield, per ton, $867 in gold; the mixed quartz, talcose slate, gozzan, pyrites, &c., yields upon analysis, $310 42 per ton.

MINING.

Mineral Property of Virginia—Its Condition and Prospects.

It is a work of time and effort to divert capital from established channels, or to draw it into new ones. Thus, New York capital can as yet scarcely be obtained at all for the development of Virginia mining and mineral interests, whereas millions have followed millions, like so many sheep jumping over a fence, out of Wall-street away into the distant mountains of Colorado. Yet, both financially and politically, the speedy invigoration of Virginian industry is of the utmost importance; for the country cannot afford to have the enormous natural capital of that great and rich State lying so idle as it is at present. And if any hearty unity is to be secured in our country, it must be secured by the strong welding of fervent industries, and the commanding position, great influence and representative character of Virginia render her of no less importance in the progress of reconstruction, than heretofore in in the career of secession and rebellion.

Nothwithstanding this reluctance to invest, some very promising beginnings have been made since the war, in resuming work among Virginian minerals, or in opening new mines. Take, for instance, the Virginian gold field, which may be described as a strip of territory lying parallel with the Blue Ridge—that is, running north east and south-west, about 150 miles long, and from thirty to fifty broad, including the counties of Spottsylvania, Louisa, Fluvanna, Goochland, Buckland Appomattox, Campbell, Pittsylvania, and Franklin, besides parts of others. Near Rocky Mount, in Franklin County, surface gold was being gathered in paying quantities a month ago by the thriftless and wasteful labor of unskilled poor people, with pick and pan. Similar labor is securing in Goochland and Louisa counties, and elsewhere, gold amounting to $3 or $4 a day per hand. Within a few months the Marks mine, the Waller mine, and other good gold properties, were yielding gold to regular though insufficient skilled labor, and machinery, and a number of other good gold properties were only waiting money and enterprise to resume the career which the rebellion cut off short five years ago.

Other metals have been mined in Virginia with more profit than gold. The Tredgar Works have drawn most, if not all of their pig iron from within the State, and the manufactured iron turned out there is of the first grade of excellence. The iron supplies of Virginia are scattered throughout the State, (above tide water,) and are as wonderful as those of Missouri and far more accessible. Among its many iron regions, one of the most remarkable is the vast deposit of brown hematite ores in Alleghany County, known as "The Iron Mountains of Virginia." The Messrs. Jordan own, near Covington in that county, a tract which has been described as *a cubic mile*—not a superficial mile—of brown hematite iron ore; and that vicinity alone is estimated as able to furnish a million of tons of iron a year for more than a century. The lead works of Wythe County alone supplied the demands of the whole rebel Confederacy during the latter part of the war.—The coal mines of Virginia have been worked more or less for a hundred years, and at one time competed largely with the Nova Scotia coals in supplying the Eastern Manufacturing market. From 1841 to 1845 the Virginia supply to Boston and vicinity was at the rate of over 170,000 bushels a year, against about 800,000 bushels from Nova Scotia. But, although the Virginia article was allowed to be as good, during the next five years the Virginia supply fell to an average of about 86,000 bushels, while that from Nova Scotia rose to over 1,300,000 bushels. Bad management is the trouble, for the Richmond papers themselves complain that their city, though absolutely standing on a bed of coal, pays higher prices for it than any other city in the Union.

Other minerals are equally plentiful, and in like manner are easily yielding to the insufficient means employed supplies so abundant as to show how immense are the stores left untouched. Slate quarries equal to those of Wales are now furnishing roofing for the rebuilding of Richmond. Laborers go with carts at low tide and pick out marl on the banks of York river to rejuvenite the farming lands of the Peninsula. In fact, a great part of the worn-out lands of Eastern Virginia are underlaid with the very marl that would make the surface rich as ever. The underside of the old tobacco farms is untouched. Turn them over and their fertility is restored. A company is at work on the porcelain clays of Prince Edward County. The Hydraulic lime of Rockbridge County has been manufactured to some extent. The salt works near Wytheville supplied a rebel demand far and near, as did the lead mines near by, and are still in operation.

But it is unnecessary to enumerate all the Virginian minerals which are even now utilized; and they are only a small share of those capable of profitable working. The Virginians, in all their mining interests, have only scratched a little on the face of the old "Mother of Presidents"—they have never fairly dug into her bosom. There is scarcely a shaft in the State eighty feet deep, except, perhaps, a few coal works, while in California there are shafts a thousand feet down; and the European miners, as everybody knows, have gone down over thirty-seven hundred feet.

We append a comparative table of expenses and business features, showing approximately what the difference is between handling property in Colorado and Virginia.

COMPARATIVE MINING EXPENSES, &C.

Transportation of machinery per ton,	$8 to $12	$25 to $50
Length of working time per year,	11 mos.	5 to 6 mos.
Cost of hired labor per day,	$1 to $1,50	$7
Cost of gold machinery to work 50 tons of ore per day, delivered,	$5,000 00	$15,000 00
Cost per day of running a 50-ton mine,	25 00	500 00
Cost of Timber per cord,	1 50	7 00
Cost of water power per square foot per year,	nothing	2,000 00
Distances from New York, miles,	400	2,500
Time by nearest route, days,	2	30
Cost of reaching by public conveyance,	$20 00	$200 00
Corn per bushel,	50	2o 00
Hay per ton,	10 00	150 00
Character of adjacent lands,	fertile	barren
Cost of mining lands per acre, average,	$100 00	$5.000 00
Character of ores in general,	kindly	intractable
Relative value of ores per ton,	equal.	
Conveniences for living with family,	sufficient	none
Danger to life and property (any)	equal.	

E. S. J.

Lead as an Amalgamator.

We clip the pollowing from an exchange: "William M. Fuller, of Chicago, has invented a machine for amalgamating gold by means of melted lead, instead of quicksilver. The machine is constructed so that the pulverized quartz is forced throught the melted lead by atmospheric pressure, and by this means it is contended that the gold is extracted more completely than by any process of amalgamation with quicksilver. A trial of the machine was made at Chicago, and a committee appointed to examine its practical working, made a favorable report on the result, and claimed the invention of something wonderful. It is known that melted lead will form a complete alloy with gold, and being much cheaper than quicksilver, it is not improbable that the invention of Fuller's machine may prove an era in the history of quartz mining."

The San Francisco *Mining Press* prints the foregoing and adds:. "We cannot present here a treaties on the metallurgy of lead and gold, and will only say that although no fact is more ancient in the history of metallurgy and none has been longer or more widely applied in practice than the fact that lead will alloy with gold and silver, yet the absurdity of expecting economical results from the processes above indicated will be evident to all who are acquainted with the metallurgy of of lead, and with practical quartz mining. Any extraction of gold or silver from their ores by means of lead, that does not involve a *fusion* of the ores themselves, can be at best but very partial and incomplete, and any effective treatment of these ores by means of lead, would be quite expensive here, demanding considerable fuel, and furnaces specially adapted to the end in view, and involving loss of lead, etc.

"The agency of lead may be advantageously used with *some ores* (particularly rich and complex silver ores, *accompanied by lead ores in considerable quantity*) even on this coast; but it is not adapted to general use

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ond the particular method of applying, described above, is still less so."

SUTRO'S GREAT TUNNEL.—A. Sutro, the principal proprietor of the great Comstock Tunnel, was in the city yesterday, perfecting his plans for the carrying out of this great enterprise. He goes to the east on the next steamer, and is very confident of his ability to induce heavy capitalists to interest themselves in this vast project, and one that is mathematically certain to yield rich returns for the capital invested. This tunnel is undoubtedly the grandest and most extensive piece of work ever undertaken on this coast. It will, when completed, be three and seven-eights miles in length, and will cut the Comstock load beneath the Curtis shaft of the Lavage company, nearly two thousand feet perpendicular from the surface. This tunnel is of vastly more importance, as far as the working of the Comstock ledge is concerned, than is generally supposed, for at the depth mentioned, the ore, unless much richer than has yet been encountered, will hardly pay for hoisting and milling, for large bodies of water doubtless exist there which would have to be pumped out at vast expense, even allowing that the mine could be thus freed from that troublesome element, while through the mediumship of this great tunnel, it would run out itself without any expense whatever, and all the ore from the ledge could be taken out through the same tunnel to the Carson river, where water and wood and all other facilities exist for the cheap and speedy reduction of the ores.—*Virginia Enterprise, April 28th.*

OLD MINES RE-DISCOVERED.—In Brazil, in the town of Rio Grand de Sul, old silver mines worked by the Jesuits, have been re-discovered. There are said to be in the southern part of California also, silver mines of the greatest richness which were worked before the formation of the Mexican Republic with great results, all traces of which were carefully concealed when the priests, who had taken the profits of them, were compelled to leave the country. The Indians were put under oaths, with fearful penalties, not to disclose the locations of them.

GAS.

Introduction and Progress of Gas Into Society.

It is only necessary to go back to the days of William Murdoch, a resident of Cornwall, England, who is entitled to the merit of being the first to introduce in a practical manner artificial gas to the purposes of illumination. This was accomplished at the Soho Manufactory of Boulton & Watt, in Cornwall, upon the occasion of the illumination for the Peace of Ameins, in 1802, although he actually lighted his own house at Redruth with gas as far back as 1792. From 1802 to 1805 the only progress made was in lighting up all the shops of Soho, and introducing it into some of the cotton mills at Manchester. In 1806, all England became aroused in the new light, and Mr. Murdoch found hosts of competitors. In 1807, Mr. Clegg, another employe of Boulton & Watt's, became engaged in the construction of gas works in different parts of England, with some improvements upon Mr Murdoch's plan, so that in 1808 the names connected with gas enterprises became so numerous, and inventions multiplied so fast, that it is impossible to follow them in detail. In 1809 the chartered Gaslight Company of London was formedf, or the purpose of lighting London and Westminister. In 1813 Westminister bridge was lighted for the first time. St. James' Park was the scene of a beautiful exhibition of gas lighting in 1814, when the allied Sovereigns visited London, and a general illumination took place in commemoration of the peace of Europe. In 1815 the Guildhall was lighted with gas.

In the following year it was introduced into Baltimore; in 1817 into Philadelphia; in 1822 into Boston, and in 1825 into New York, when the New York Gaslight Company was chartered. This company for many years used rosin extensively in the production of gas. In 1830 the Manhattan Gaslight Company was chartered. At that time there were but four gaslight companies in the United States From 1830 to 1840 the number was only increased ten. At the present time there are in—

Maine,	11	Mississippi,	4
New Hampshire,	9	Arkansas,	1
Vermont,	9	Tennessee,	4
Massachusetts,	59	Kentucky,	6
Rhode Island,	7	Ohio,	36
Connecticut,	18	Indiana,	10
New York,	81	Illinois,	16
New Jersey,	20	Missouri,	4
Pennsylvania,	56	Iowa,	6
Delaware,	4	Wisconsin,	9
Maryland,	8	Michigan,	10
District of Columbia,	2	Minnesota,	1
Virginia,	10	Kansas,	1
North Carolina,	8	California,	11
South Carolina,	3	Oregon,	1
Georgia,	6	Nevada,	1
Alabama,	4	West Virginia,	2
Louisiana	2		
Florida,	1	Total,	452
Texas,	3		

The quantity of gas made annually by these works is, in round numbers, 10,000,000,000 cubic feet, and being located among a popolation of 7,200,000 inhabitants, it follows that the annual product is 1.389 cubic feet, or 3 8 10 feet per night for every person within the gas districts of these works. There are about 26,000,000 people in the United States outside of gas districts, or too remote from the works to be reached by the mains, showing that there is yet a large field for the introduction of gas.

Of this vast quanty of gas, requiring a space to hold it equal to the surface of 640 acres, and a receptacle 330 feet high, the four companies of the city of New York manufacture one-fifth, while Philadelphia, Brooklyn, Boston and its vicinity, Baltimore, Cincinnati and Chicago, aggregating a populatiog of nearly two millions persons, manufacture three-tenths, being the half of the whole product of the United States by twenty-four works, all of which is consumed in seven cities. The other half is produced in 428 works, and is consumed in 428 cities and villages, whose populations range from 2,000 to 175,000 persons—in the aggregate about 4,000,000.

The price of gas per one thousand cubic feet in twenty-five of the largest cities, including the government tax, is as follows:

New York, average,	$3 16	Albany,	$3 75
Philadelphia,	3 15	Providence,	3 75
Brooklyn, average,	3 50	Pittsburgh,	2 30
Boston, average,	3 60	Rochester,	4 25
Baltimore,	3 30	Milwaukee,	4 00
Cincinnati,	3 33	Detroit,	4 00
Chicago,	3 80	Jersey City,	4 00
New Orleans,	5 50	Richmond,	5 00
St. Louis,	4 17	Charleston,	5 00
Newark,	3 75	New Haven,	3 75
Buffalo,	3 50	Syracuse,	4 25
Louisville,	3 33	Lowell,	3 75
Washington,	4 10		

The average is $3 70 per one thousand feet. In the remaining 407 cities, towns or villages the average is $4 72 per one thousand feet; the lowest price being $3 50 and the highest $6.

COMMERCIAL VALUE OF OXYGEN.—The general application of oxygen to lighting and heating purposes has been proposed in Paris The expense has hitherto been the obstacle to its introduction, for although there many substances which yield oxygen in abundance, all are too dear. Mr. Archereau has proposed the reaction of silica upon the sulphate of lime as a source of oxygen. When these substances are heated to a proper temperature, silicate of lime and two gases—sulphurous acid and oxygen—result. The former is used for the manufacture of sulphuric acid, and the latter it is proposed to press into cylinders and sell by the cubic foot. The materials here used are very cheap, and the heat required to fuse them will be obtained from a mixture of common gas and oxygen. The silicate of lime could be used in the manufacture of glass. By directitg a jet of oxygen through an ordinary gas burner the illuminating power of the gas is greatly increased, and a saving of from forty to fifty per cent. effected. The introduction of the oxygen into the flame has also important consequences to health. It will destroy all the noxious gases which escape the purifiers, and only water and carbonic acid will result from the combustion. The amount of these latter will be less than usual for the reason that greater illuminating effect is produced by the employment of a simaller quantity of gas. By the combustion of illuminating gas and oxygen nearly the same heat is produced as by the oxy-hydrogen blow-pipe. All metals can be fused by this means if placed in suitable crucibles, and the cost of large furnaces and expensive fuel will be saved in numerous industries.

MISCELLANEOUS.

Successful Trial of a Submarine Novelty.

Last week there was a private trial of the Pacific Pearl Company's Submarine Explorer, in the dock foot of North Third stred, E. D., Brooklyn. The officers of the Company and a few friends only were present. At 1:30 o'clock, Julius H. Kroehl, engineer, with Frederic Michaels, August Gets and John Tanner, entered the explorer through her man hole, which being finally closed and the signal given the boat was submerged, and for an hour and a half she traversed the bed of the dock. During the submersion the friends of those on board the boat exhibited considerable anxiety for their safety, but when at last she rose to the surface and Engineer Kroehl and his companions emerged from her chambers, (the former leisurely smoking his meerschaum,) they gave vent to their feelings in repeate cheers. These were again and again repeated when the engineer held up a pail full of mud which he had gathered at the bottom of the dock, showing conclusively the success of the experiment. This boat is 36 feet long, was built under the immediate supervision of Engineer Kroehl, and cost about $75,000. Those who went down in her say that with the exception of a slight tingling sensation in their ears they felt quite comfortable, and could remain submerged for days,—This is more remarkable as the boat is perfectly airtight, the men depending on the fresh air "manufactured" in the chamber of the boat assigned to them, and they live on the surplus of oxygen gas in the water, on the principle that fishes live. The boat is worked by a propeller worked by hand. The hull is of peculiar shape, constructed partly of wrought and partly of cast iron, and is divided into three chambers. This experiment, which is the fourth that has been made, was highly gratifying to the officers of the company present. A public exhibition of this novelty will take place in a few days, at which the government will be represented by a board of competent engineers. Although this boat was intended for pearl fishing in the Pacific, her success as an engine of naval warfare is looked upon with favor by the Navy Department, Chief Engineer Wood, of the Navy having made an elaborate report to Secretary Welles to that effect.

THE CITIES OF OILDOM.—The editor of the Tidioute *Chronicle* has been on a visit to the West Hickory oil regions, and thus describes two cities which he passed through: "As a matter of course, when you can find oil, you can find a 'city' near by. The one here is called Livingstone City, so named after somebody, but we don't know who. It is a peculiar place; every alternate place is a saloon, one-half the balance are restaurants, and the remainder are hotels; the hotels are all furnished with bars. We should state, in justice to the city, that there are three exceptions to this rule—a billiard hall where whiskey is dispensed, and two offices each furnished with a side board. Sheridan City has one church, and owns an institution called a sweatboard. The inhabitants are a very economical set.—They import barrels of whiskey, and export barrels of oil, thus saving freight on "empties." It is a wealthy community, but few appearing to labor; here are to be found many professional gentlemen, generally astronomers. An enterprising firm has leased a strip of land having a river front of fifty rods, and are about erecting store-houses, wharves, &c. They will keep whiskey on deposit only. 'Take it all in all, and we shall ne'er look upon its like again'—if we can help it."

Entered according to Act of Congress, in the year 1866, by J. W. Bryant, in the Clerk's Office of the District Court of the United States, for the Southern District of New York.

TREATMENT AND USES OF PEAT AND PEATY MATERIAL.

BY J. BURROWS HYDE.

No. 8. Pine Street,
New York, June 16, 1866.

Messrs Editors:—In sending you this—the fourth, and for the present the last—paper I can give you on the "Treatment of Peat and Peaty Material," I must plead other and pressing duties as my reason and excuse to yourselves and such of your readers as may have read with interest my previous papers, for the delay since the last chapter. After yielding to your courteous proposal, I have been under the dread of making it "too long a story," for I confess to you that so much crowded in my thought, and with its importance—it seemed to me—added to the vast deal of matter I have in notes, extracts, and results of my own workings with the material, I could not decide properly how to commence, nor how to stop. If I have given any information to those interested, or interested any new party, in an important and useful line of enterprise, it is all I could have wished. The material has, however, several valuable uses and adaptations of which I have not thought expedient to refer to.

With much respect, yours very truly,

J. Burrows Hyde.

(*Concluded from page* 309.)

Peat from some localities will give a distillation of good 16-candle gas, but usually when well dried by artificial means, will rarely exceed a light of 8 or 10 candles, and yields 8,000 to 10,000 cubic feet to the ton, which gas, for heating purposes, is better than that from coal, and by the addition of petroleum with the peat distillation, the gas can be brought to any required standard of illumination. Three tons of ulmin and 30 gallons of crude petroleum will produce 24,000 cubic feet of good commercial gas and one ton of charcoal, which, if the material has been previously properly treated by powdering and granulation as before stated, will sell for nearly the whole expense. A mixture of equal parts of pulverized ulmin and pulverized charcoal make a superior facing for molds for casting metals.

Peaty matter, being always of a spongy consistency when taken from its bed, will, except in rare cases, dry in the same condition; hence its lightness and rapid combustion when fired, particularly if accelerated by a draft of air. For that reason it is always improved as a fuel if condensed. But to effect this advantageously, the material must be manipulated to break up its cellular structure and render the mass homogenous and of uniform consistency. This must be done by mechanical means, wherein has been the great difficulties encountered by those who have invented or arranged apparatus for effecting it, particularly as the peat varies materially in its structure, which I will try and classify:

1st. That composed entirely of coarse fibre, always very porous;

2d. That composed entirely of fine fibre, more compact, like hair felt;

3d. That composed of decomposed vegetable matter, pulpy, cutting like butter, having no trace of vegetable organism, and when dried and cut with a knife, presents a dull surface;

4th. That which dried resembles the latter, but when cut shows a bright or vitrious surface;

5th. That where the first or second class or both are mixed or incorporated with the third class, which is the usual condition of peaty matter in this and the New England States;

6th. Where undecomposed roots or other woody matter from trees is found intermixed with it, and also bones of animals, and even stones.

The tenacity of the fibres also vary in different beds, some being strong and wire-like, others rotten and tender.

Varous mechanical systems have been used to work peat. First that to facilitate its removal from the bed instead of by manual labor, and which must have very limited adaptibilities, and I question if even with prolonged advantages, except where the material is taken from under water, and then at a cost to make it of little advantage. The best machine I have heard of will take out forty tons of wet peat per day, and requires five men, whereas a good digger will lift ten tons a day to the surface on which he stands, and even two feet above it.

Of the systems for manipulating, or kneading, the first was to tread it on the grass with the feet of men or animals. Of the machines, the Chilian Mill system seems the most crude. An upright shaft of wood is firmly fixed in position; a second and rotating shaft of wood is placed horizontally, about two feet from the ground, one end of which is secured by a toggle joint to a loose strap around the upright shaft; a disk wheel of wood, iron or stone, its lower edge resting on the ground and inside a circular curb is placed on the horizontal shaft, to the outer end of which an ox or horse is attached, and causes the shaft and wheel to rotate, the peat being turned in front of the wheel by attendants. This is the same contrivance as that used by many country tanners for grinding bark. Another system is by crushing cylinders with transverse corrugated or angular surfaces, some having the cylinders or crushers horizontal, others vertical; this is the cider mill plan. The next system in order consists in a vertical rotating shaft, to which curved or radial arms or blades are secured, and with or without intermediate arms or grates fixed to the inside of the box or curb, the material passing in at the top and out at the bottom through proper openings. Some are designed to cut or break up the fibre and combine it with the pulpy portions; others mix only. This is similar to the pug mills for kneading brick clay.

Another plan consists of a horizontal rotating shaft with flat curved blades, also enclosed in a cylindrical box, the material passing in the top at one end and out at the bottom of the other end. A second rotating shaft, also provided with curved blades, working intermediately with the other, is fixed above, but not over the main shaft. This rotates with higher speed than the lower one, and serves both as a manipulator and a comb, as it revolves in opposite direction and takes off the fibre, or a good part of it, and throws it into a receptacle from which it passes out with more or less of the pulp at the same end as received; this forms a second quality fuel.

Another plan consists of a vertical cylinder with a conical base of boiler iron, which is closely perforated with holes about one-quarter of an inch in diameter. Within this cylinder is a rotating vertical shaft, provided in its upper part with radial arms or blades, and at the lower end within the cone is a conical flat-bladed screw, the consequent pressure from which forces the pulpy portion through the holes into a trough, while the fibres are forced out through an opening in the bottom of the cone.

Some persons have kneaded the material in vats filled with water, raked out the fibre, allowed the pulp to settle, drained off the water, then removed the pulp for drying. This was patented in England to preserve the pulp for illuminating gas.

I trust by these several methods I have said enough to give a general idea of that speciality of the operation.

When the peat has been manipulated, it has to be dried, or molded and then dried. There are many great difficulties attending the molding of ulmin pulp in a wet state, as it comes direct from the bed to the kneader and then to the molder, for usually there is an excess of water, and this is pressed from the mould, and where water passes, so will the pulp, particularly where the action is rapid; and the constant labor in cleansing away the waste seriously impedes the utility of all such plans. I think peat should be partially dried before conveying it to the mill; it will involve increased power, but the advantage will compensate in a better result. Some believe that advantage is gained by treating the ulmin with hot water, and others with steam, to accelerate the drying. I doubt, however, the commercial practicability of any such methods, even were they successful in accomplishing a saving of time in the drying.

As a general condition, peat in the bed holds seventy-five per cent. of water—that is, four tons of peat in the bed will yield one ton of dried material. Peat bricks, however well pressed and prepared, will be moist, and this must all be expelled if they are to be kept for winter use, for the frost will cause them to break up and disintegrate. Of the methods of drying by artificial heat, I am satisfied it is wrong to attempt it. Aside from the expense of heating, it can only be done where the bricks are placed in separate layers on stages, and with continuous cooking, great heat is always required. Artificial heat consequently involves large room, attended with great volume of heat, and corresponding extensive surface for radiation, as well as openings for its escape. We must depend upon the air and the sun as the most effective, the cheapest, and, on the whole, the quickest.

There is, however, one important improvement, the author and patentee of which I would like to name did it not involve the propriety of my doing so in other cases described; besides, it would not be just to thus use your journal for a good advertisement for the parties, under such a privilege. The system is working most encouragingly near Boston. The peat being first manipulated, is treated as follows to dry and form fuel bricks: Trenches six feet wide and of any convenient length are dug six inches deep; boards one foot wide are placed vertically on their edge around the sides and ends, and the interior is then filled six inches deep with coarse sand or gravel, upon which, closely and evenly, is laid porous bricks; the upper edges of the boards then form a curb about three inches high.

The manipulated ulmin is brought in cars or wheelbarrows and dumped upon the bricks, over which it is spread and the surface made even and smooth by a straight-edge drawn over the board edges. Then a rake or guage cutter is drawn across from end to end, dividing the pulp to the bricks into stripes about three inches wide, and by a similar method it is cut transversely at intervals of ten inches length, thus forming the bricks, in which condition they are, when dry, removable. The result is, that while by all other methods the top dries, the lower part remains more wet than when first laid, in this case the absorbing action of the bricks takes the water from the lower part directly. I have seen the bricks thus treated in three hours after operating more freed from moisture than the best air and sun could effect in two days by external surface dessication; indeed, the upper surface would take the imprint of a dime coin by its own weight, while I could have shaved the bottom with a knife—and this in weather succeeding several days' rain showers, and cloudy.

This plan has other advantages, the cuts to form the bricks not only permitting rain water to pass down between them and between the porous bricks to the porous bottom below, but presents the sides and ends to the drying influence of the air, each hour's action of which by the resulting shrinkage opens wider and wider the exposure, and I am satisfied that ulmin pulp treated in this manner will harden and dry in half the time that it will by any other method, and at a great saving of labor and risk. Another result is, the bricks thus formed have a density or specific gravity equal to machine moulded bricks, samples of each of which now lie before me; and as my purpose is to furnish information, I deem it a duty in good faith to say thus for what I conceive the greatest recent improvement for treating peaty matter for fuel.

The "walks," as they are called, are placed about four feet apart, and are duplicated—that is, in alternate sets—so that when the bricks are removed from one set this is allowed the "curing time," or about two days for the bricks to dry, before receiving a fresh covering from the manipulator, which is the invention of the same party. But I need not designate it here, inasmuch that in the "curing" system he has no rival, and therefore, in praising it, I do not feel that I am affecting any man's interest.

In manipulating peat for fuel, the expense is—within a fraction—all due to manual labor; and it is of vital importance that the means employed be such as to require the least possible movement or handlings. I, as a matter of course exclude artificial heat for drying, and other useless niceties, which, like some modes for treating auriferous nature, *work out* the product, but make the gold cost $25 an ounce in *gold times*.

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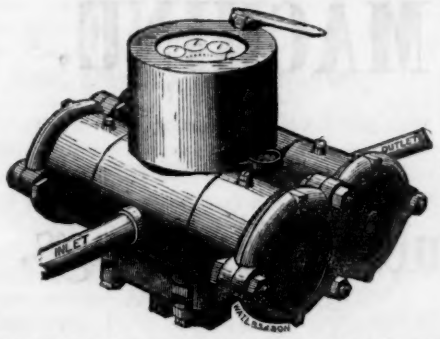

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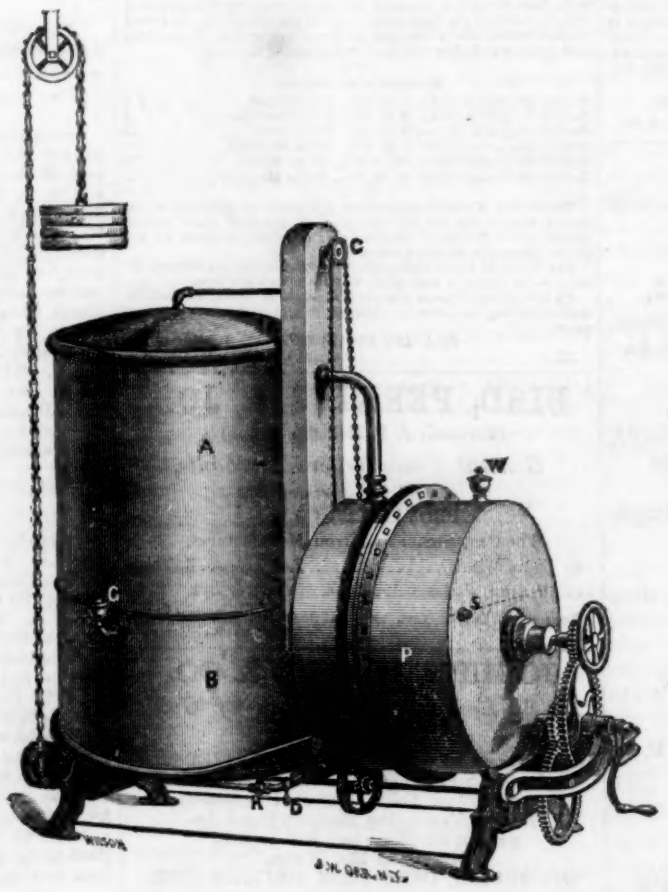

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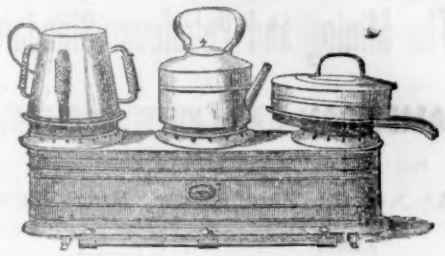

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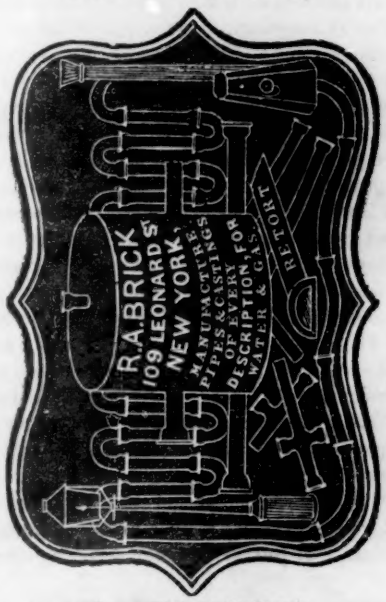

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At No. 22 Pine Street, New York.

JAMES W. BRYANT, } EDITORS.
M. P. CALLENDER, }

SATURDAY, JUNE 16, 1866.

THE MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL, is published at No. 22 Pine Street opposite the Sub-Treasury Building on the 2d and 16th of every month, and is a recognized official organ of—

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PETROLEUM, WATER-SUPPLY, AND

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☞Our subscribers would confer a favor upon us by remitting *checks, or Post Office Money orders*, as we are frequent losers by money sent by mail.

☞We should be pleased to make our journal an organ of intelligent discussion for those of our subscribers and readers who may wish to gain, or give information on the subjects to which our columns are devoted. We solicit letters from those who make the study of gas a pleasure as well as a profession.

Close of the Volume.

The present number ends the Seventh Volume of THE JOURNAL, and we take this occasion to thank our patrons for their liberal support. Notwithstanding the illness of the writer during the greater part of the year preventing editorial articles, we feel great satisfaction in the compilation of so much valuable and interesting matter as this volume gives. Some complaints have reached us that we have neglected the gas interests and devoted ourselves to mining and petroleum business. To some extent it may be true, but those who know about gas matters are aware how impossible it would be to fill our Journal with articles upon gas worth reading in comparison with the general scientific information we have given. Our gas companies may be assured that they will be informed upon every *important* movement in the progress of the science of gas manufacture, or apparatus and machinery incident to it. There are pending some very important propositions respecting the the manufacture of gas, and experiments are being made under our personal observation—if the results are favorable, the public shall know them—if not, silence upon the subject is perhaps best.

Our increased circulation and advertising assures us that we are approved, and we promise ourselves a continuance of patronage to our deserving enterprise.

The next number, commencing Volume VIII., will give evidence of confidence by its improved appearance, and we assure our friends that the Journal is now in a better condition in every respect than at any time since the present proprietor possessed it, owing greatly to the professional and practical intelligence of Mr. Callender, who has lately become interested in the Journal.

In our next number we shall give a list of all the gas companies in the United States and British Provinces.

J. W. BRYANT.

Gas from Wood—An Important Invention.

The Detroit papers give a detailed account of an invention which bids fair to greatly reduce the price of gas A Mr. Ensley, a Canadian, several years since, was struck with the fact that smoke issuing from a vessel in which tar was being boiled out of pitch pine, would burn. He pondered over it, visited several gas works until his ideas became clearer, and led him to construct a small retort for experimental purposes. His attempts to discover some means by which the gas might be separated from the other constituents of the wood were for a long time in vain, and it was only after seven years continued study and reflection, that his perseverence was rewarded by a solution of the problem, which enabled him to obtain a patent for the United States and British Provinces. Mr. Ensley, however lacked enterprise and means to carry the thing through. But he has recently found a Mr. Moffat, of Komoke, C. W., a gentleman wealthy enough, and sufficiently confident of the success of the invention to give it a fair trial, and a large model has been set up at Mr. Moffat's for that purpose.

It is claimed that 4,500 feet of gas can be produced from half a cord of wood and a barrel of bones. But this is not the only saving. When these articles are consumed in accordance with Mr. Ensley's directions, there is no waste whatever, but simply a transmutation into other commodities of almost equal value, to which the gas is superadded. The wood yields not only gas, but charcoal, tar and turpentine. The bones give a residuum of ivory black, phosphorous and ammonia of a superior quality; and the vegetable substances residuum of other things, which other scientific experiments will no doubt yet bring to light and find use for. In this manner, the gas becomes, as it were, a mere incidental feature, manufactured not only at a minimum expense but of an excellent kind. At the same time, few things can be more simple than the apparatus, or more easily worked.—*Exchange.*

The art of manufacturing gas from wood, etc., is not new. Many patents have been granted for this purpose, and practically tested. We see no new feature in this process of Mr. Ensley. A Mr. Coons, of Brooklyn patented and operated a similar process several years ago, with hard wood, from which a residuum of excellent charcoal was produced To supply carbon he used the bones and refuse from markets and kitchens, or any animal or fatty matter. The Aubin process, wherein wood is distilled in combination with petroleum or common tar, has been extensively employed, and with a far greater yield of gas than the process above described—as high as 17,000 feet of gas per cord of wood having been produced. Several interesting articles and reports upon this subject have appeared in the JOURNAL. A copy of a very interesting letter from C. M. Cresson, Esq., formerly Engineer of the Philadelphia Gas Works, to Col. A. J. White, will be found in No. 125, vol. 6; and other articles will be found in Nos. 123, 124, and 127 of the same volume, on this well digested subject.

☞The attention o Gas Companies is directed to the advertisement of the Niagara Falls Gas Company, of Purifiers for sale, which will be found in anthe column. Parties desiring purifiers of this size cannot do better than to purchase them.

An Immense Structure Upon Sixteen Hundred Screws.

The "Briggs" is going up, though prices will remain as heretofore. When that hotel was built, a few years ago, people complained of the sidewalk in front of it, which was much higher than in front of the neighboring premises. Time, that works wonders, has changed the order of things, and latterly the Briggs House sidewalk has been a foot or two lower than its neighbors. Messrs. W. H. Tucker & Co., having effected another lease of the premise for a term of six years from this spring, determined to raise the noble structure "to grade," giving the full benefit of its splendid first story, which is now four feet and two inches below grade.

The mammoth undertaking was commenced several weeks ago. The building is a massive brick structure, with mastic facing, five stories high, and with a front of eighty feet on Randolph street, and one hundred and eighty feet on Wells street. To raise this immense weight from its foundation, and elevate the entire mass four feet and two inches, is no trifling matter, though here in Chicago, where this sort of thing originated and has been practiced so frequently, little more is thought of it than would be of the moving of a wooden building from one location toanother.

The foundations having been excavated and the timbers and screws put in place, this forenoon was selected for the beginning of the grand forward or upward movement. A very large force of workmen, together with a number of "invited guests," manned the sixteen hundred screws, and at a given signal, which was sounded at precisely eighteen minutes after eleven o'clock, the levers were set in motion, and the huge structure, lifted by the irresistible power of the screw, began its upward journey.

The contract price in raising the building is $9,000. It will cost as much more to build up the foundations, and with interior improvements contemplated the entire outlay will exceed $30,000.—*Chicago Times.*

PEAT.—The New Haven, Hartford and Springfield Railroad Company made an experimental trip from Hartford to Springfield recently, using for fuel peat of their own manufacture. The New Haven Journal reports that "the whole distance to Springfield and return consumed but about 1,200 weight of peat. In the generation of steam it far exceeded either wood or coal, and even while running at the greatest speed, so rapidly did it gain, that the furnace door had to be thrown open. The last six miles of the return trip was made without using a particle of fuel. One great consideration, which will be hailed with joy by the traveling public, is the entire absence of smoke or cinders, the whole substance burning to ashes."

DISCOVERY OF ROCK SALT NEAR NEW ORLEANS.—Much interest has been created by a recent discovery in the valley of the Mississippi, near New Orleans, of an immense bed of pure rock salt, almost as transparent as crystal, which lies some thirty feet below the surface. Specimens of the salt have been received by the Smithsonian Institution. A most singular fact in connection with this valuable deposit has been the discovery of the remains of an elephant twenty feet below the surface of the superincumbent earth, beneath which have been found basket work formed of reeds. Photographic representations of this handwork are in possession of the institute.

ASSAY OFFICES.—Mr. Allison, of Iowa, has reported a bill to establish assay offices, for the assay of gold and silver, at Portland, Oregon, and Boise City, Idaho. The bill also repeals the act establishing a branch mint at Dallas City, Oregon, and provides for the removal of the machinery, &c., of the branch mines in Charlotte, N. C., and Dahlonega Ga.

PHŒNIX

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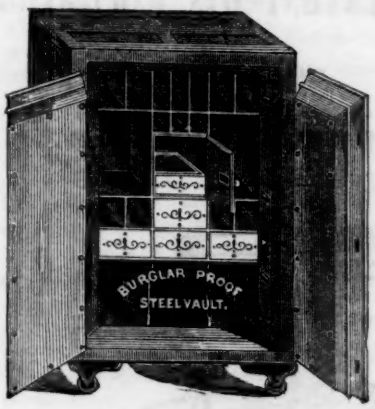

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2	16	12	11	90	2	34	24	16	300
3	20	13	12¼	120	2½	32	33	16	400
4	21½	21½	13	150	3	38	24	16	350
5	26	18	13	220	4	44	24	16	400
6	22½	26	14	250	5	44	32	17	500
7	26	21	14	240	5½	40	38	17	525
8	29	24	14½	300	6	50	32	17	550
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750	89	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
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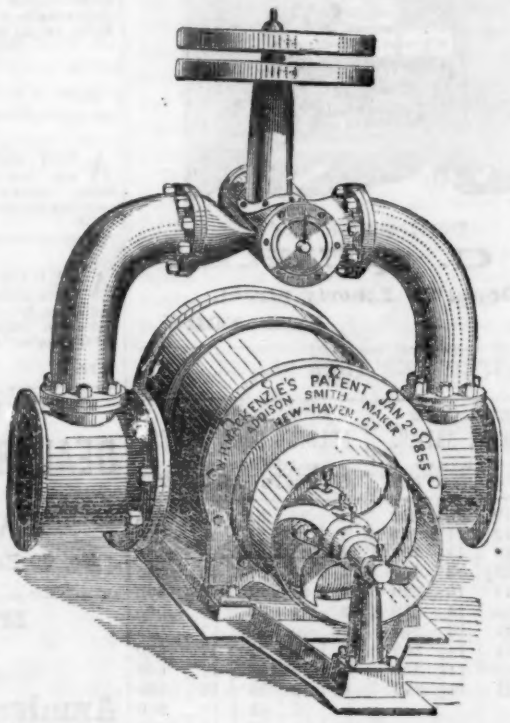

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Great Improvement
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EMPIRE
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This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather o the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

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PRICE OF MACHINES,
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One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably CASH on delivery.

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It is entirely noiseless.
A patented device prevents it being turned backward.
The needle cannot be set wrong.
It received the Gold Medal of the American stitute in 1863,
InSend for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

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Conically Slotted Solid Wood Sieves
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The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

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GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
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ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
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The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of sewing.

These Improved Machines SAVE ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.

N. B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

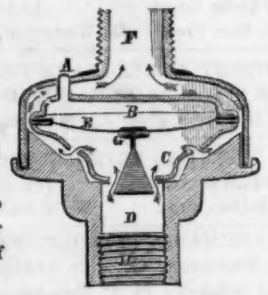
Agents wanted in counties not vassed by ur own agents.

Finkle & Lyon S. M. Co.
No. 538 BROADWAY, NEW YORK.

NOTICE TO GAS COMPANIES AND GAS CONSUMERS.

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SAND , Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
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Persons interested are invited to call at the Office, 28 Liberty street, where they can see the operation by pressure guage and test meters]

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THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York

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This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, accuracy and excellence of workmanship. Orders addressed

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West Twenty Second Street, New York. Arch and Twenty-Second Streets, Philadelphia. No. 23 West Street, Boston will meet with prompt attention.

Harris & Brother, Practical Gas Meter Manufacturers,

Continue, as heretofore at their old Establishmen, No. 1117 CHERRY ST., PHILADELPHIA, to Manufacture

AN D DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicted, and promptly attended to, by
HARRIS & BRO., No 1117 Cherry st., Philadelphia.

Messrs Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sirs;—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality—the number furnished by you to these works is over 5,000.
JOHN C. CRESSON, Engineer;

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of wokmanship and accuracy of registration; they are surpassed by none, and equaled by few manufactories in the Union; we have used meters made by other establishments but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.
G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Georgia.

Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanshipall we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother. March 14, 1857.

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory, and take pleasure in expressing my opinion to their correctness. On several occasions I have taken your meters apart, and found the material used in the manufacture of the same, to be as fine quality as is used in those imported from Europe, or made by any of the manufacturers in the United States. Respectfully Yours, GEORGE WIEGAND, Inspector of Gas Fittings, Philadelphia.

EDDY'S

Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,

Manufacturers, No. 494 Broadway, New York.

Send for Illustrated Circular. (136

KNITTING MACHINES

FOR

Families and Manufacturers,

☞ *Something New and Invaluable for Family Use.*

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space—is portable and can be attached to a stand or table, weighs about 40 lbs.

It will knit a variety of Stitches—the breakage of needles is trifling—the cost of needles is insignificant and the most delicate material can be knit pure and spotless, as the needles are not oiled.

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Send for a Circular—Agents wanted.

DALTON KNITTING MACHINE CO.,

137] 537 Broadway, N. Y.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 20 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency 389 Broadway, N. Y.

Below we give a few prices:

No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

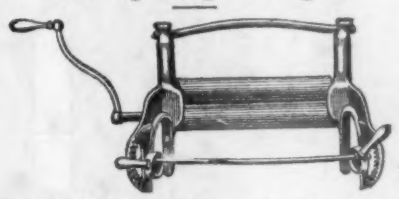
WEED SEWING MACAINE Co.,

136) 506 Broadway, New York

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $8 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January,* 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any,* to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,

13 PLATT STREET, New York,
BENNINGTON, Vt.,
CLEVELAND O.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diameter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four months duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of E. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments, I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,

127] No. 2 Pearl st. House, Boston.

AMBROSE SPENCER GILCHRIST.

(LATE CAPT. U. S. V.,)

CIVIL, MINING

AND ARCHITECTURAL ENGINEER,

No. 200 BROADWAY, Office 12.

New York.

New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation,* for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage,

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

DEBILITY, WEAKNESS, AND PROSTRATION.

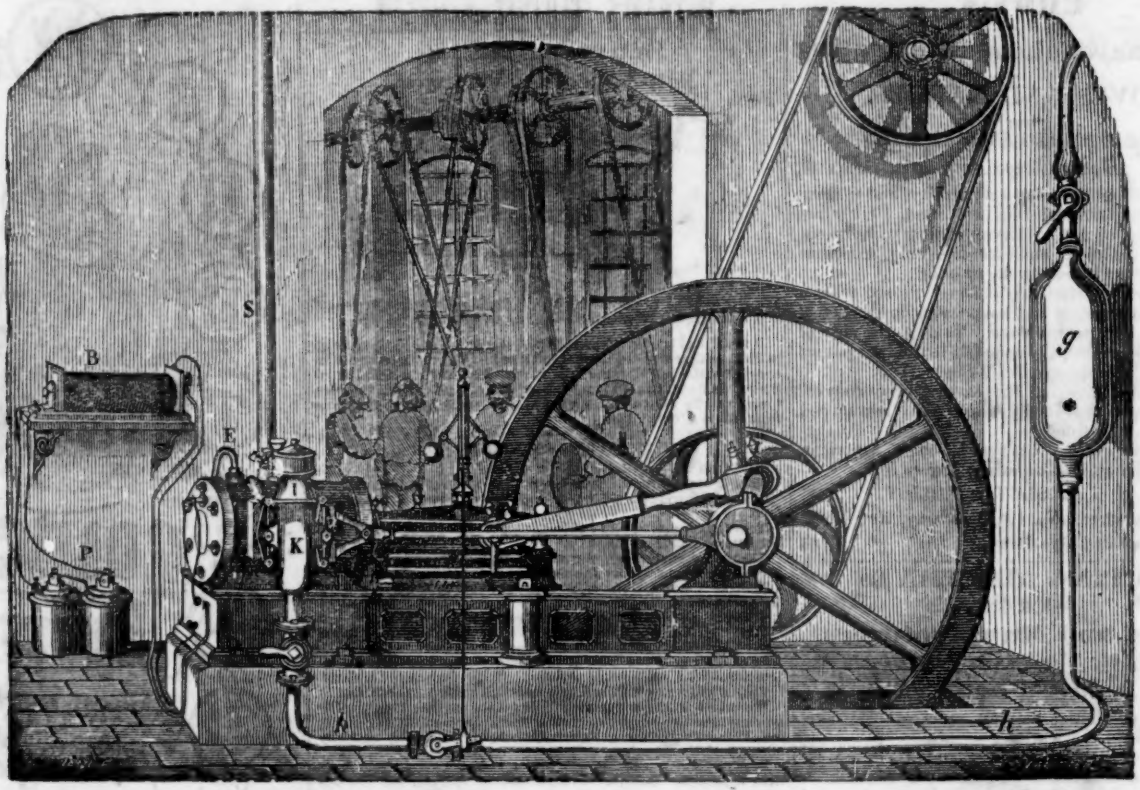
Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co, Sole Proprietors

CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants or an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy keep in the house.—*New York Weekly Day Book.*



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india-rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end ot the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

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